

Patent

**REMARKS**

Claims 1-22 are currently pending in this application. Reconsideration is respectfully requested in light of the above claim amendments and the following remarks.

**Claim Objections**

Claim 19 was objected to. Applicant has amended claim 19 in accordance with the Examiner's suggestion. Applicant therefore respectfully requests that this objection be withdrawn.

**35 U.S.C. § 102 Rejections**

The Examiner rejected claims 1-22 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 6,393,316 to Gillberg et al. Applicant respectfully traverses this rejection.

Applicant's claimed invention as recited in independent claims 1, 19 and 22 is directed toward a method and corresponding apparatus for improving classification of rhythms produced by a beating heart. For example, independent claim 1 recites a method comprised in part by storing intervals corresponding to a sequence of complexes, analyzing the stored intervals and excluding one or more of the morphology scores based upon the analyzed intervals. (Underlining added for emphasis only). Applicant respectfully submits that Gillberg et al. do not disclose or suggest the recited claim elements.

Rather Gillberg et al. disclose that common commercially marketed implantable medical devices employ rate/interval based timing criteria as a basic mechanism for detecting the presence of a tachyarrhythmia. To this end, the

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devices define a set of rate ranges and utilize counters associated with each rate range to track the numbers of intervals falling within the defined ranges. In operation the counter for a corresponding rate range is incremented when an R-R interval falling within the defined rate range is detected. Gillberg et al/ then use the counts to signal detection of an associated arrhythmia when they individually or in combination reach a predetermined value. (Gillberg et al., col. 8, lines 9-43).

Thus, Gillberg et al. sort detected intervals into corresponding rate ranges to classify heart rhythms. Gillberg et al. do not however disclose or in any way suggest excluding one or more of morphology scores based upon the analyzed intervals of those sequences as recited in claims 1, 19 and 22 of the present invention.

Rather, in Gillberg et al. if the rate based analysis detects a tachycardia a morphology analysis subroutine determines whether the morphology of at least a predetermined number of the preceding series of R waves is indicative of a ventricular tachycardia. If so, the morphology criterion is met and an anti-tachycardia therapy is selected and delivered. (Gillberg et al., FIG. 3A, col. 9, lines 55-65). Thus, in Gillberg et al. the morphology analysis is simply used to validate the rhythm classification derived by analyzing the R-R intervals prior to delivery of therapy.

Gillberg et al. do not however, disclose or in any way suggest excluding one or more of the morphology scores that correspond to the sequence of complexes based upon the analyzed intervals of those complexes as recited in claims 1, 19 and 22 of the present application. Accordingly, Applicant respectfully submits that claims 1, 19 and 22 are novel and unobvious over Gillberg et al. and are therefore allowable. Applicant further submits that claims 2-10 and claims 20-21 that depend

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from claims 1 and 19 are allowable as are claims 1 and 19 and for additional limitations recited therein.

Further, independent claims 11, 15 and 18 recited similar limitations. For example, independent claim 11 recites a method comprised in part by comparing each of the complexes in the sequence with a template to generate a morphology score for each complex ... determining whether a selected one of the stored intervals is shorter than a predetermined length and invalidating a morphology score for a complex corresponding to the selected interval if the length of the selected interval is shorter than the predetermined length. The recited method then diagnoses the type of tachycardia based on the remaining valid morphology scores: Applicant respectfully submits that Gillberg et al. do not disclose or suggest the recited claim elements.

Rather, as argued above with respect to claims 1, 19 and 22, Gillberg et al. define a set of rate ranges and utilize counters to track the numbers of intervals falling within the defined ranges. In operation the counter for a corresponding rate range is incremented when an R-R interval falling within the defined rate range is detected. In Gillberg et al. the counts are then used to signal detection of an associated arrhythmia when they individually or in combination reach a predetermined value. Gillberg et al. then use morphology analysis to validate the rate based arrhythmia detection prior to deliver of therapy.

Gillberg et al. do not however disclose or suggest determining whether a selected one of the stored intervals is shorter than a predetermined length and invalidating a morphology score for a complex corresponding to the selected interval if the length of the selected interval is shorter than the predetermined length as

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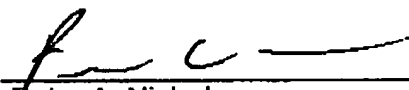
recited in claims 11, 15 and 18 of the present application. Applicant therefore respectfully submits that claims 11, 15 and 18 are novel and unobvious over Gillberg et al. and are allowable. Applicant further submits that claims 12-14 and claims 16-17 that depend from claims 11 and 15 respectively are allowable as are claims 11 and 15 and for additional limitations recited therein.

Applicant respectfully submits that the present application is in condition for allowance. If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call Peter Nichols at (818) 493-2323.

Pursuant to 37 C.F.R. 1.136(a)(3), Applicant hereby requests and authorizes the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 22-0265.

Respectfully submitted,

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